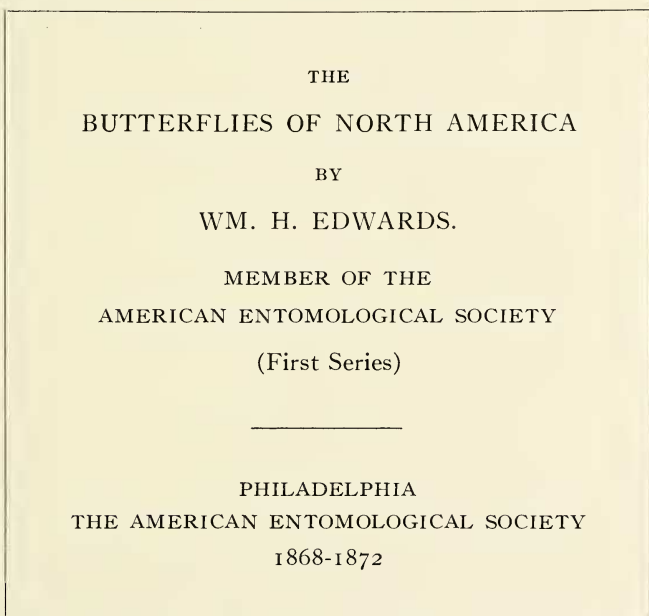


## II. THE ARGYNNIDS OF THE NOKOMIS-GROUP.

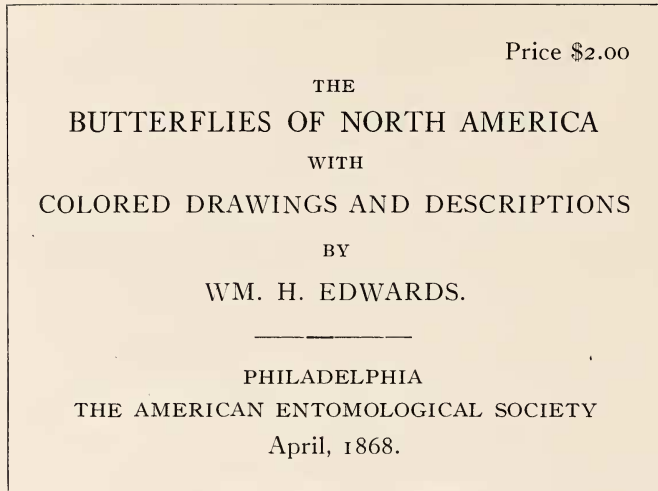
BY W. J. HOLLAND.

(PLATE II)

In April, 1862, William H. Edwards described an *Argynnis* to which he applied the specific name *nokomis* (Cf. Proc. Acad. Nat. Sci. Philada, XIV, p. 221). His description was founded upon a male specimen. He says "the female I have not seen." He gives as the habitat of the species "Rocky Mountains and Mountains of California." In the year 1868 he began the publication in parts of his great work, "The Butterflies of North America." The original edition of the first volume, which consisted of ten parts and a supplementary part, was issued by The American Entomological Society. The title-page of Vol. I is as follows:



The first cover-page of the first part issued bears the following:



This first part contained five plates and accompanying text, representing five species of *Argynnis*: *A. diana*, *A. cybele*, *A. aphrodite*, *A. nokomis*, and *A. atlantis*. The first four plates bear the signature of D. Wiest, by whom the figures were drawn. The fifth plate does not bear the signature of the artist, but it may also have been drawn by Wiest; if not by him, by Mary Peart. The plates in the nine following parts and the supplementary part were all executed by Mrs. Peart. Part 10 was issued in July, 1872. The front cover-page of this part does not differ in any respect from that of Part I, except that the price printed in the upper right hand corner is "\$2.50" to which figure all but the first two parts had been raised with the issue of Part 3 in December, 1868. The back cover-page of Part 10 bears the following:

#### "NOTICE TO SUBSCRIBERS

"It was intended to issue the new plates of *Argynnis Diana* and *Leto* with Part 10, according to notice heretofore given. But within the last two months specimens of *Argynnis Nokomis*, of both sexes, have been received from Arizona, and the female being remarkable for its coloration, belonging to the same group with *Leto*, and in some respects resembling *Diana*, it was deemed of importance to redraw the plate. Therefore it was concluded to deliver this Part immediately, and as soon as possible follow it with a supplementary number, con-

taining the plate of *Nokomis* furnished gratis to each subscriber, and the other two to such as have ordered them. The title page and Index will then also be given."

The supplementary part appeared in November, 1872, and contained plates of *Argynnis diana* and *Argynnis nokomis* drawn by Mrs. Peart, intended to replace the plates of these species originally figured by D. Wiest, and a plate of *A. leto* originally drawn by Mrs. Peart, but in which the female represented a worn and rubbed specimen. The first plate of *A. leto* had been issued in Part 4, in April, 1869. The text issued with these plates was slightly revised and modified to meet the circumstances.

The plate entitled "Argynnis IV," in the Supplementary Part represents both the upper and under sides of both sexes of what Edwards regarded as his species *nokomis*, based upon "five ♂, 2 ♀, brought from Arizona by the Exploring Expedition under Lieut. Wheeler in 1871, but with no further intimation of their locality." Three of these males and the two females labelled "Arizona" still remain in the Collection of William H. Edwards, as I received it from him. Two of the males he may have parted with in exchange, or by gift, before I bought his collection. At later dates he received specimens of the same butterfly from southern Utah. These are labelled "A. nokomis" in his familiar handwriting. There are altogether nine specimens of *A. nokomis*, males and females, labelled by Edwards, in the long series which I possess, and agreeing with the description, which he published in 1862, except for a slight discrepancy, of which I shall speak later, and also agreeing with the redescription and the plate by Mrs. Peart, which was issued by Edwards in 1872. In addition to these specimens labelled by W. H. Edwards, I have others from Arizona collected by Morrison, and a number from California, collected by the late W. G. Wright, and purchased by me from him.

In 1874, two years after the publication of his revised and completed description of *A. nokomis*, accompanied by the plate by Mrs. Peart, showing the upper and under sides of both sexes of that species, and eleven years after he had published his first description of *A. nokomis*, W. H. Edwards published his first description of *A. nitocris* (Cf. Trans. Am. Ent. Soc., V, p. 15). The type of this species is a male. Edwards in speaking of it says that his description is based upon "one male, taken at White Mountains, Arizona, by Lieut. Henshaw of the Exploring Expedition under Lieut. Wheeler, August,

1873." This specimen he figured in *The Butterflies of North America*, Vol. III, 1887, "Argynnis, Pl. I," on which plate he also gives figures of both the upper and under side of the female of the species. In the *Butterfly Book*, published by me in 1898, Plate XIV, fig. 4, I gave a representation of the under side of this identical specimen, the "type," produced by color-photography. Any student can see at a glance by comparing the plates of *A. nokomis* and of *A. nitocris* given by Edwards, and the figure of the type of *A. nitocris* in *The Butterfly Book*, that the two species, *nokomis* and *nitocris*, are, as species among the Argynnids run, quite distinct, though related to each other. They belong to a group, to which *A. leto* Edwards and *A. cærulescens* Holland also belong.

In 1918, fifty-six years after W. H. Edwards had published his original description of *A. nokomis*, forty-six years after Edwards had published a revised description of that species, accompanied by a most faithfully executed plate, showing both sides of the two sexes of the species, and thirty-one years after Edwards had given a magnificently accurate plate of *A. nitocris*, my good friend, the late Dr. Skinner of Philadelphia, came across some rejected and cancelled plates of *A. nokomis*, which Edwards had not used and had failed to have destroyed. On the strength of these and the discrepancy between the first and second descriptions of *A. nokomis* published by Edwards Dr. Skinner reached the conclusion:

1st. That the original description of *A. nokomis* refers to the insect at a later date named *A. nitocris* by Edwards;

2nd, that *A. nitocris* is a synonym of *A. nokomis*;

3rd, that in consequence the butterfly named and figured as *A. nokomis* by Edwards was without a name. Dr. Skinner accordingly proceeded to rebaptize *A. nokomis* of Edwards as *A. apacheana* Skinner. He sent a pair to the late Charles Oberthür of Rennes, who figured the insect in his *Lépidoptérologie Comparée*, Fasc. XXI, 1923, p. 160, Pl. DLXX, figs. 4811 and 4812. The figures given by Oberthür are rather gaudily colored, showing on the under side of the male an excess of green, and in this respect differing not only from all specimens in the Edwards Collection, but also from the specimen in Skinner's Collection, which he has labelled as the "type" of *A. apacheana*, and which I have recently critically examined. Oberthür's artist probably did the coloring "by prescription." Comstock in his *Lepidoptera of California*, has followed Skinner in calling *A. nokomis*



of Edwards *A. apacheana* Skinner, and so have Barnes & Benjamin, the compilers of the most recently published check-list.

Winn in *The Entomological News*, Vol. XXX, 1919, pp. 156-159, raised the question whether an examination of the original issues of Edwards' *The Butterflies of North America*, if still in existence, might not throw light upon the subject of the identity of *A. nokomis* and *A. nitocris*, which had been affirmed by Skinner. To the queries raised by Winn Dr. Skinner replied in effect that he could throw no light upon the matter beyond what he had already stated in his article in which he had re-baptized *A. nokomis* Edwards as *A. apacheana* Skinner. The recent perusal of Winn's queries and Dr. Skinner's reply thereto led the writer to make an investigation for the purpose of ascertaining whether he could find copies of the original Part I of Edwards' *Butterflies* containing the first plate of *A. nokomis* issued in April, 1868, in which he had figured the "type," the only specimen Edwards had, when he caused the plate to be executed.<sup>1</sup>

To his great delight he found that his colleague, Dr. Avinoff, has in his possession a copy of the first volume of *The Butterflies of North America*, which once was the property of R. L. Walker, as the book-plate shows. Dr. Avinoff purchased it in London a number of years ago. The plate "Argynnids IV" is a colored figure of the male type of the species, made by Wiest. On Plate II, accompanying this article, in figs. 1 and 2 I give photographic reproductions of the right side of the type of *A. nokomis*, as shown in Wiest's original colored drawing given in Walker's copy; I also give (fig. 3) a photographic representation of Mrs. Peart's drawing of the under side of the male of *A. nokomis*, as it appeared in the supplementary part of Vol. I of Edwards' work, and as it appears in all the subsequent editions, which were at first issued by the firm of *Hurd and Houghton* of Boston, and then by the successors of that firm, *Messrs. Houghton, Osgood, and Company* and *Messrs. Houghton, Mifflin, and Company*. These gentlemen, to whom Edwards transferred the publication of his work after the issue of the "First Series," or volume, by The American Entomological Society, reprinted in 1879 the whole of Vol. I, and subsequently

<sup>1</sup>That the insect delineated by Wiest was the *type* is proved by Edwards himself, who says: "The original specimen from which the description of the species was drawn was received by me in 1862 through the Smithsonian and was labeled 'Bitter Root Mountains.' Until the present year (1872) it has been an unique in my collection, and, so far as I know, not found in any other."

printed and published Vols. II and III. In the reprint of Vol. I by Houghton, Osgood, and Company, in 1879 the plates issued in the supplementary part of that volume by the American Entomological Society are substituted for the plates, which Edwards had discarded. These plates are therefore authoritative. They furnish the final concept in the form of illustration of what Edwards regarded the species *A. diana*, *A. nokomis*, and *A. leto* to be in life.

Now at this point, if the reader will consult Plate II of the present article, and will carefully compare Fig. 2 (Wiest's colored figure of the underside of the *type* of *A. nokomis* Edw. as shown in Walker's copy of the first issue of the plate) with fig. 3 (Mrs. Peart's colored drawing of the under side of the male of the same species) he will find that the two figures are practically identical in all their markings and tones, the differences being so slight as only to be detected by a critical eye, and being scientifically of no moment whatever.

In the supplementary part of Vol. I in the text dealing with *A. nokomis* Edwards speaks in pointed terms of the difficulties he had encountered in finding competent colorists. He also states that all subsequent plates will be executed by Mrs. Mary Peart. The existence in the Library of the American Entomological Society of a large number of rejected plates, furnishes eloquent testimony to the trials which Edwards must have undergone in his first attempt to secure accurately colored plates for the early issues of his now famous book. Through the kindness of Mr. R. C. Williams, Jr., I am in possession of one of these discarded plates. It differs from the plate which is found in Walker's copy, now in the library of Dr. A. Avinoff, in that the extreme outer margin of the hind wing on the under side has been colored deep red, and the median and basal areas are blotched with dark irregular pinkish red markings, which, so far as I know, have never been found on any specimen of *A. nokomis*, and which do not in the slightest degree suggest the under side of the wings of *A. nitocris*, which are solidly dark ferruginous in their ground-color from the base to the outer margin of the median row of silvery spots (*Cf.* Pl. II, figs. 5 and 6). Edwards apparently did not succeed in preventing some of the erroneously colored plates from getting into circulation. Through the kindness of Dr. Sweet, Librarian of the Museum of Comparative Zoology at Cambridge, I have had in my hands their copy of Vol. I of *The Butterflies of North America* for examination and study. In this copy the rejected plates have been bound in with

the approved plates. The plate of *A. nokomis* in the copy at Cambridge is like the copy of the rejected plate, which I received from Mr. Williams, with slight variations. The outer border (not the "hind border") of the under side of the wing of the male is painted even deeper red, and the dark patches of color, which differ somewhat in outline from those in the plate received from Mr. Williams, are even darker than in the latter plate, agreeing neither with Edwards' original description, nor with anything I have ever seen in nature, nor with the original contained in Walker's copy a photograph of which is given in Plate I.

My inquiries as to original copies of Edwards' work issued by The American Entomological Society were addressed, among others, to the Librarian of Congress. Under date of July 5, 1928, I received an answer, from which I quote as follows:

"According to a report from Mr. Roberts, the Superintendent of the Reading Room, the Library of Congress appears to have no copy of the American Entomological Society's issue of the first series of Edwards' work. Neither has he been able to locate copies in the Union Catalogue of the larger libraries of the country, the Department of Agriculture Library, nor the Smithsonian Institution Library.

"The Superintendent has been informed that Mr. Harrison G. Dyar, of the United States National Museum, owns a copy of what he thinks is the first issue of the first series."

Dr. Dyar writes me that the copy of the First Volume of Edwards' work in his possession does not contain Wiest's original plate, "Argynnis No. IV," but only the plate executed by Mrs. Peart, and issued as a substitute in November, 1872. In this respect Dr. Dyar's copy agrees with the original in the New York Public Library, which I have examined, and which only preserves Wiest's plate of *A. diana* bound in with Mrs. Peart's plate of that species and her revised plate of *A. leto*. Wiest's plate of *A. nokomis* is missing. The only imprint is that of the American Entomological Society in this copy.

In the library of the American Museum of Natural History in New York there is preserved a copy of the issues of the First Series (Vol. I) of Edwards' work in which the original plates are bound in with the substituted plates, and in which the original wrappers of the parts, as issued, are likewise preserved. I am greatly indebted to Miss Ida R. Hood, the Acting Curator of Books and Publications for transcripts of these wrappers, and other valuable information, which she has

most kindly given me, some portions of which I shall publish in a note at the end of this paper. (See p. 28). An examination of the plate executed by Wiest representing the male type of *A. nokomis* in this copy shows that it agrees with the plate in Walker's copy, and therefore with the figure given in Mrs. Peart's revised plate.

The weight of evidence drawn from the copies of the first issue of Edwards' figure of the type of *A. nokomis*, which are still extant, goes to show that, as it was drawn, then lithographed and printed, before it had been touched by the colorist, it was practically identical in every particular with the figure given in the revised plate issued in November, 1872. Of the colored copies which are extant in published sets, two at least, the one in the American Museum of Natural History and Walker's copy, agree with Mrs. Peart's figure of the male both on the under and upper sides.

Turning now from a critical examination of the plates, let us take up the original descriptions of *A. nokomis* and of *A. nitocris*.

Dr. Skinner in his paper published in *The Entomological News*, XXIX, 1918, pp. 67-68, makes the unqualified statement that "There can be no question that the original description of *nokomis* applies to what we know as *nitocris*, and that therefore *nitocris* becomes a synonym of *nokomis*." He states that Mr. R. C. Williams, Jr., had examined the Edwards Collection in Pittsburgh, and that the type of *A. nokomis*, from the "Bitter Root Mountains" could not be found. That statement is correct. No specimen of *A. nokomis* bearing the locality-label "Bitter Root Mountains" was in the Edwards Collection, when I received it. It is not in Washington. Dr. Dyar has searched for it. So far as the lepidoptera of North America are concerned, Dr. Dyar writes me: "there is nothing in Washington antedating the Riley Collection." The type specimen has been lost, whether it was lost in the mails, or smashed in the hands of the draftsman, there is no evidence. That it was what we know as *A. nokomis*, is however proved by a comparison of Walker's copy and the copy at the American Museum of Natural History with the plate executed by Mrs. Peart, ocular proof of which is submitted in this article (Pl. II, figs. 2 and 3). It apparently did not materially differ from the specimen before Mrs. Peart, and her drawing of the male may even have been made from it.

There is only one point at which the original description of *A. nokomis* by Edwards seems to suggest that an insect somewhat re-

sembling *A. nitocris* Edw. was before the author when he penned his description of the former species. It is where he says of *A. nokomis* "Secondaries cinnamon-brown, somewhat mottled with buff, and having a green tinge next abdominal margin." In his description of *A. nitocris* he says: "Secondaries deep ferruginous from base to outer edge of the second row of spots." Dr. Skinner apparently fixed his eyes upon the two words "cinnamon-brown" and "deep ferruginous" and imagined that he had discovered in their use the fact of identity between the two species. He seems to have entirely lost sight of the fact that Edwards adds to the use of the word "cinnamon-brown" the qualifying words "mottled with buff and having a green tinge next abdominal margin." The presence of a slightly "green tinge" is characteristic of very fresh specimens of *A. nokomis*, especially in the female; it is absolutely wanting in all specimens of *A. nitocris*, which have the ground-color of the basal and median areas solidly and uniformly "deep ferruginous," very deep rusty brown, "morocco red" (Ridgway) from the base to the outer margin of the second row of silvery spots. This is true of the "type" of *A. nitocris*, which is before me (See Plate II, figs. 5 and 6). It is not true of the figures of the under side of *A. nokomis*, either in the published or the rejected plates. How my friend, Dr. Skinner, persuaded himself that the original description of *A. nokomis* is a description of "of what we know as *nitocris*" is beyond my ken. I am convinced that in this matter he made an error.

Edwards in his redescription of the under side of the male published in 1872 substitutes for the words "cinnamon-brown mottled with buff, etc." the words "Secondaries uniform golden yellow from base to margin." This description is hardly what I should give. The secondaries are not what I should call "golden yellow," but *pale cinnamon-buff*. This is in fact what appears upon Mrs. Peart's figure, in the copy of Wiest's plate in the Walker set of the first issue, in the copy in the American Museum of Natural History, as well as in the "type" of *A. apacheana*, preserved in the Skinner Collection, which does not differ by an iota from the specimens from Arizona in the Edwards Collection, labelled "*A. nokomis* Type" by Edwards.

I am convinced after a full review of everything, which has been said upon the subject:

1. That Edwards' description of *A. nokomis* as having the under side of the hind wing of the male "cinnamon brown, somewhat mottled



with buff, and having a green tinge next the abdominal margin . . . . the hind margin yellowish brown" is *not* descriptive of *A. nitocris*, which he correctly describes as having the under side of the secondaries in the male "deep ferruginous from the base to the outer edge of the second row of spots."

2. According to Edwards the only specimen of *A. nokomis* in his possession until 1872, was the unique type of the male. This he caused to be figured by Wiest, and published to the world in 1868. Wiest's figure of the male, as shown in two of the plates which certainly were published, agrees with the figure given in the substituted plate, which depicts both sexes, and which was drawn by Mrs. Peart, the motive of the author being to show the female as well as the male of the species in the plate he finally sent out to subscribers. A well executed figure is always to be preferred to a verbal description. Oberthür used to say: "Pas de bonne figure, pas de nom valable."

3. W. H. Edwards did change his description of the under side of the male of *A. nokomis* by substituting the words "golden yellow from base to margin" for "cinnamon brown mottled with buff, and having a green tinge next the abdominal margin," but both descriptions in the light of fact are seen to be infelicitous, and *neither of them at all describes A. nitocris*. *A. nitocris* absolutely is not a synonym of *A. nokomis*, Dr. Skinner to the contrary notwithstanding. Edwards had no specimen of what he called *A. nitocris* in his hands for eleven years after he had published his first description of *A. nokomis*, nor for two years after he had given to the world his final description and plates of this species.

3. The act of W. H. Edwards in redescribing and finely illustrating both sexes of what he considered to be the species which he had named *A. nokomis*, was a perfectly legitimate procedure and clarified the question as to the identity of the species. If I give a deed to a tract of land to a purchaser, and subsequently discover that in my description of the metes and bounds I have made an error, and then give to the purchaser a second supplementary deed, rectifying the imperfect description, any court of justice would recognize the validity, as well as the propriety, of my act. The case *in foro entomologico* is strictly analogous. The act of Edwards in redescribing and accurately figuring both sexes of his *A. nokomis* was to settle controversy. His Plate "Argynnis IV" in the supplementary part of the first volume of the Butterflies of North America to my mind is authoritative and

final, settling for all time what Edwards in the last analysis meant by the name *A. nokomis*. Subsequently in the U. S. Geographical Survey of the 100th Meridian, Vol. V, published by the U. S. Government Printing Office, 1875, Chap. VIII, p. 751, pl. XXXV, Edwards gives both the upper and lower sides of both sexes of *A. nokomis*, the male being darker on the upper side than as figured in 1872 in the "Butterflies of North America." Otherwise the two plates closely resemble each other. Strecker in Ruffner's Annual Report, Appendix SS, Government Printing Office, 1873, p. 1849, pl. I, figures the upper and lower side of what he calls "*A. nokomis* Edwards, ♀, aberr." He, however, made a misidentification. His plate represents the upper and lower side of *A. nitocris* Edw.

4. I maintain that the application of the new name *apacheana* by my friend, Dr. Skinner, to *A. nokomis* upon a surmise, quite imperfectly substantiated by the finding by him of some plates which Edwards had rejected because they had been wrongly colored, and by the discrepancies which have been pointed out between the first and the revised description by Edwards was a regrettable error.

5. *A. apacheana* Skinner is a pure synonym for *A. nokomis*, and I shall so treat it in my forthcoming book upon the butterflies of boreal America.

The bibliography and synonymy of the group, or complex, to which *A. nokomis* belongs, has been worked out by me as carefully as I have had time to undertake the task. It is herewith appended.

#### I. ARGYNNIS LETO Behr.

*Argynnis leto* Behr, Proc. Cal. Acad. Nat. Sci., II, 1862, p. 173; W. H. Edwards, Proc. Ent. Soc. Philada., III, 1864, p. 435; Butt. N. A., I, Pl. Argynnis X, 1869; Kirby, Syn. Cat. Lep., 1871, p. 157; Edwards, Butt. N. A., I, Argynnis Pl. X, 1872 (redrawn plate); Scudder, Bull. Buffalo Soc. Nat. Sci., II, 1875, p. 259; Edwards, Cat. Diurn. Lep. North of Mexico, Trans. Am. Ent. Soc., VI, 1877, p. 20; Revised Cat., *ibidem*, 1884, p. 268; List of Species of Diurn. Lep. North of Mexico, in Appendix to Butt. N. A., II, 1884, p. 3; Skinner, Ent. News, IV, 1893, p. 318 (Queries whether *leto* is not a western form of *A. cybele*); Syn. Cat. N. A. Rhopalocera, 1898, p. 5; Holland, Butterfly Book, 1898, p. 105, Pl. IX, figs. 5 and 6 (♂ and ♀); Dyar, List N. A. Lep., 1902, p. 13; Skinner, Trans. Am. Ent. Soc., XXIX, 1902, p. 36; Wright, Butt. West Coast, 1905, p. 130, Pl. XII, figs. 110, 110a, b, c, (♂ and ♀); Lehmann, in Seitz, Gross-Schmett. d. Erde, V, 1913, p. 407, Pl.



86a; Barnes & McDunnough, Check-list Lep. Bor. Am., 1917, p. 7.

*Argynnis cybele*, var. *leto* Strecker, Lep. Rhop. and Het., 1875, p. 106; Syn. Cat. Am. Macro-Lep. North of Mexico, Diurnes, 1878, p. 111.

*Dryas leto* Barnes & Benjamin, List Diurn. Lep. Bor. Am., 1926, p. 11.

#### VARIETAL FORMS.

*Argynnis leto*, var. *charlottii* Barnes, Canad. Ent., XXIX, 1897, p. 40; Strecker, Ent. News, VIII, 1897, p. 117 (maintains that var. *charlottii* is a synonym of *A. leto*); Skinner, Syn. Cat. N. A. Rhopal., 1898, p. 5; Cockerell, Univ. Colorado Studies, VII, 1910, p. 126; Barnes & McDunnough, Check-list, 1917, p. 7.

*Dryas leto*, var. *charlottii* Barnes & Benjamin, Check-list, 1926, p. 11.

*Argynnis leto*, ab. *letis* Wright, Butt. West Coast, 1905, p. 130, Pl. XII, fig. 111; Barnes & McDunnough, Check-list, 1917, p. 7.

*Dryas leto*, ab. *letis* Barnes & Benjamin, List Diurn. Lep. Bor. Am., 1926, p. 11.

#### 2. ARGYNNIS NOKOMIS Edwards.

*Argynnis nokomis* Edwards, Proc. Acad. Nat. Sci. Philada., 1862, p. 221; Butt. N. A., I, *Argynnis* Pl. IV, 1868 ( $\sigma^7$  type, drawn by D. Wiest); Kirby Syn. Cat., 1871, p. 157; Edwards, Butt. N. A., I, *Argynnis* Pl. IV, 1872 ( $\sigma^7$  and  $\text{♀}$ , redrawn plate); Synopsis N. A. Butt., 1872, p. 12; Edwards and Mead, Report Wheeler's Expedition, V, Zoölogy, Chap. VIII, 1875, p. 751, Pl. XXXV,  $\sigma^7$ ,  $\text{♀}$ ; Cat. Diurn. Lep. North of Mexico, Trans. Am. Ent. Soc., VI, 1877, p. 19; Strecker, Syn. Cat. Macro-Lep. N. A., Diurnes, 1878, p. 110; Edwards, Revised Cat., etc., Trans. Am. Ent. Soc., VI, 1884, p. 264; List of Species of Diurn. Lep. North of Mexico, Appendix to Butt. N. A., II, 1884, p. 3; Skinner, Syn. Cat. N. A. Rhop., 1898, p. 4; Holland, The Butterfly Book, 1898, p. 104, Pl. X, figs. 1, 2 ( $\sigma^7$  and  $\text{♀}$ ); Dyar, List N. A. Lep., 1902, p. 13; Skinner, Trans. Am. Ent. Soc., XXIX, 1903, p. 36; Wright, Butt. West Coast, 1905, p. 129; Lehmann, in Seitz, Gross-Schnett. d. Erde, V, 1913, p. 407, Pl. 86a; Barnes & McDunnough, Check-list Lep. Bor. Am., 1917, p. 7.

*A. cybele*, var. *nokomis* Strecker, Lep. Rhop. and Het., 1875, p. 106.

*A. apacheana* Skinner, Ent. News, 1918, p. 67; Oberthür, Lépidoptérol. Comparée, Fasc. XXI, 1923, p. 160, Pl. DLXX, fig. 4911,  $\sigma^7$ , 4912,  $\text{♀}$ ; Comstock, Butt. Cal., 1927, p. 81, Pl. 23, figs. 1-3 ( $\sigma^7$ , and  $\text{♀}$ ).

*Dryas apacheana* Barnes & Benjamin, List Diurn. Lep. Bor. Am., 1926, p. 11.

## 3. ARGYNNIS NITOCRIS Edwards.

*Argynnis nitocris* Edwards, Trans. Am. Ent. Soc., V, 1874, p. 15; Edwards & Mead, Report Wheeler's Expedition, V, Zoölogy, Chap. VIII, 1875, p. 751; Scudder, Bull. Buffalo Soc. Nat. Sci., II, 1875, p. 259; Edwards, Cat. Diurn. Lep. N. A. North of Mexico, Trans. Am. Ent. Soc., VI, 1876, p. 20; Strecker, Syn. Cat. Macro-Lep. N. A., Diurnes, 1878, p. 111; Edwards, Revised Cat. etc., *ibidem*, 1884, p. 268; Butt. N. A., III, *Argynnis*, Pl. I, 1887, (♂ and ♀, types); Skinner, Syn. Cat. N. A. Rhopal., 1898, p. 5; Holland, Butt. Book, 1898, p. 105, Pl. XIII, fig. 4, (♂ type); Dyar, List N. A. Lep., 1902, p. 13; Skinner, Trans. Am. Ent. Soc., XXIX, 1903, p. 36; Wright, Butt. West Coast, 1905, p. 129; Lehmann, in Seitz, Gross-Schmett. d. Erde, V, p. 407, Pl. 86a; Barnes & McDunnough, Check-list Lep. Bor. Am., 1917, p. 7; Skinner, Ent. News, XXIX, 1918, pp. 67-68 (*errore* sinks *nokomis* as synonym of *nitocris*); Winn, Ent. News, XXX, 1919, pp. 156-159; Skinner, *l.c.*, 1919, p. 159.

*Argynnis nokomis* ab. ♀, Strecker, Ruffner's Report, 1872, p. 1849, Pl. I, (Error in identification).

*Dryas nokomis* Barnes & Benjamin, List Diurn. Lep. Bor. Am., 1926, p. 11.

## VARIETAL FORMS.

*A. nitocris* var. *nigrocærulea* W. P. Cockerell, Ent. News, XI, 1900, p. 622; W. P. Cockerell, Birds and Nature, XII, 1902, fig'd p. 83; Skinner, Trans. Am. Ent. Soc., XXIX, 1903, p. 36; Ent. News, XVIII, 1907, p. 318 (Early stages); Cockerell, Ent. Record, XXII, 1910, p. 72 (oviposition); Lehmann, (as *A. nitrocærulea*, *err. typ.*) in Seitz, Gross-Schmett. d. Erde, V, 1913, p. 408; Barnes & McDunnough, Contrib. to Nat. Hist. Lep. N. A., III, No. 2, 1916, p. 76 (maintain that *nigrocærulea* Ckll is "a direct synonym of *A. nitocris* Edw."). Paratypes received from Cockerell through Skinner and preserved in Holland Collection seem to confirm accuracy of this view. Barnes & McDunnough, Check-list, 1917, p. 7, (= *nitocris* Edw.)

*Dryas nokomis* var. *nigrocærulea* Barnes & Benjamin, List Diurn. Lep. Bor. Am., 1926, p. 11.

*Argynnis nigrocærulea* var. *rufescens* Cockerell, Ent. Record, 1909, p. 186; Lehmann, in Seitz, Gross-Schmett. d. Erde, V, 1913, p. 408.

## 4. ARGYNNIS CÆRULESCENS Holland.

*Argynnis nitocris* var. *cærulescens* Holland, Ent. News, XI, 1900, p. 332; Smith, J. B., Ent. News, XI, 1900, p. 449 (*A. cærulescens* a valid species, as shown by the genitalia); Skinner, *l.c.*, p. 483; Snyder, Occ. Mem. Chicago Ent. Soc., I, 1900, p. 33; Godman &

Salvin, Biol. Centr.-Amer., Rhop., II, 1901, p. 675, Pl. 112, figs. 15-18, ♂, ♀; Lehmann, in Seitz, Gross-Schmett. d. Erde, V, 1913, p. 408; Barnes & McDunnough, Cont. to Nat. Hist. N. A. Lep., III, No. 2, 1916, p. 74; Check-list Lep. Bor. Am., 1917, p. 11 (*cærulescens*, err. typ.).

*Dryas nokomis* var. *cærulescens* (*sic*) Barnes & Benjamin, List Diurn. Lep. Bor. Am., 1926, p. 11.

*Note.* I originally described this form as a variety of *A. nitocris* Edw. I am, however, constrained to raise it to specific rank, for though closely allied to *A. nitocris*, as species run in the genus, it is well entitled to such rank. It has nothing whatever to do with *A. nokomis*, as some hundreds of specimens, which have passed through my hands, clearly show.

NOTES ON THE DATES OF ISSUE AND THE CONTENTS OF  
THE SEVERAL PARTS OF VOL. I OF EDWARDS'  
BUTTERFLIES OF NORTH AMERICA.

As I have already intimated in the preceding pages, I am greatly indebted to Miss Ida R. Hood, the Acting Curator of Books and Publications in the American Museum of Natural History, for full information as to the copy of Vol. I of Edwards' Butterflies of North America preserved in the library of that institution. Not only are the original plates, which Edwards requested subscribers to cancel, preserved and bound in with the plates which he later issued, but the covers of all the parts, except the back-covers of parts 5 and 7, are also preserved.

VOLUME I. The "First Series" (Vol. I) of the work was originally issued by the American Entomological Society in ten Parts, to which a Supplementary Part was added. The title-page of the completed volume has been already given by me (See p. 15). The next title-page, after Hurd and Houghton had taken over the publication does not differ from the first, except that above the imprint of the American Entomological Society is the name of "Hurd and Houghton, Boston". A third printing of the title-page bears the following:

"NEW YORK

Published by Hurd and Houghton,  
Cambridge; The Riverside Press.

1874."

In 1879 the entire text of Vol. I was reset and reprinted by "Houghton, Osgood and Company, Boston, The Riverside Press." In 1888 the title-page of Volume I bears the following at the foot of the page:

<p>PHILADELPHIA          THE AMERICAN ENTOMOLOGICAL SOCIETY          1868—1872</p> <hr style="width: 20%; margin: auto;"/> <p>Text Reprinted</p> <p>BOSTON: HOUGHTON, MIFFLIN AND COMPANY          1888</p>
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In all of the issues by Hurd and Houghton and their successors the plates drawn by Wiest do not appear, but are replaced by the plates issued in the Supplementary Part in November, 1872, which were drawn by Mrs. Peart.

VOLUME II. The "Second Series" (Vol. II) reflects the changes which took place in the ownership of the Riverside Press. Parts I to VI of this volume bear the imprint of Hurd and Houghton; Parts VII to VIII bear the name of Houghton, Osgood and Company; and Parts IX to XIII were issued by Houghton, Mifflin and Company. Part XIII was issued in 1885.

VOLUME III. All the parts composing this volume were issued from the Riverside Press by Messrs. Houghton, Mifflin and Company. To this fact I can bear personal testimony, aside from that furnished by the covers of the Parts, as issued, and the title-page of the completed volume.

After the completion of Vol. II of his work W. H. Edwards, with whom I had corresponded a great deal, desired to proceed with the publication of a third volume, and so wrote me. At one time a man

of considerable wealth and the owner of large bodies of land in West Virginia, which he had inherited, his relations with the Chesapeake & Ohio Railroad, of which he was a Director, had led him into financial embarrassment. The circumstances of his embarrassment were most honorable to him, for his losses were sustained by him as a result of a valiant effort on the part of himself and his associates to keep the railroad property from bankruptcy. Had he succeeded, and thus retained possession of his inherited estate until later and more propitious times, he would have become one of the wealthiest men of his state, indeed of America. He told me of his desire to bring out the third volume of his work, and intimated to me that in order to do so he was about to propose to the Trustees of the British Museum the purchase of his collection, as they had not long before bought the collection of the moths of America made by A. R. Grote. Every American lepidopterist had come to realize the immense discomfort to which the sale of Grote's Collection had brought them. It is "a bit uncomfortable" for a student, who wishes to examine the "type" of a species, to have to make a journey from his home to Boston, New York, Washington, Pittsburgh, Chicago, or Los Angeles, but to have to make a trans-atlantic voyage is too much, whenever one is in doubt as to the name of a moth or a bug. Accordingly I wrote to Mr. Edwards and suggested to him that his great collection ought to be kept in the United States, and asked whether, if his terms were within my reach, he would not regard the cash coming from my pocket as useful as that of my British friends. The upshot of the matter was that he proposed to me, that, if I would pay the bills of the artist, Mrs. Peart, of the lithographers, the colorists, the printers, etc. etc., as they should become due, he would turn over his entire collection to me, and as "hand-money" immediately send me all his *Hesperiidæ*, the study of which he no longer intended to

pursue. So it came about that the Edwards Collection is in Pittsburgh, and that I have a sheaf of cancelled checks, many of them indorsed by Houghton, Mifflin and Company, attesting to my fidelity in carrying out my part of the contract.

#### THE DATES OF THE ISSUE OF THE PARTS OF VOLUME I, AND THEIR CONTENTS.

The issue of Vol. I gives the following:

- “Part 1.—April, 1868.—Containing *Argynnis Diana*, *A. Cybele*, *A. Aphrodite*, *A. Nokomis*, *A. Atlantis*.
- Part 2.—August, 1868.—Containing *Argynnis Callippe*, *A. Hesperis*, *Colias Alexandra*, *C. Chippewa*, (*Helena*), *C. Behrii*, *C. Christina*, *Apatura Alicia*.
- Part 3.—December, 1868.—Containing *Argynnis Monticola*, *A. Halcyone*, *Limenitis Proserpina*, *Lycæna Violaacea*, *L. Lydamas*, *Thecla Læta*, *T. Acadica*.
- Part 4.—April, 1869.—Containing *Argynnis Leto*, *Colias Eurytheme*, *C. Keewaydin*, *Limenitis Weidemeyeri*, *Thecla Ontario*, *T. Strigosa*.
- Part 5.—December, 1869.—Containing *Argynnis Edwardsii*, *Colias Eurydice*, *Limenitis Lorquini*, *Grapta Faunus*, *Lycæna Pseudargiolus*, *L. Neglecta*.
- Part 6.—June, 1870.—Containing *Argynnis Behrensii*, *A. Zerene*, *Colias Edwardsii*, *Anthocaris Reakirtii*, *A. Cooperii*, *Limenitis Californica* (*Bredowii*).
- Part 7.—January, 1871.—Containing *Parnassius Clarius*, *P. Clodius*, *Colias Occidentalis*, *Anthocaris Sara*, *Melitæa Chalcedon*, *Paphia Glycerium*.
- Part 8.—August, 1871.—Containing *Neophasia Menapia*, *Pieris Beckerii*, *P. Virginiensis*, *P. Vernalis*, *Argynnis Nevadaensis*, *Grapta Comma*, *G. Dryas*.
- Part 9.—December, 1871.—Containing *Papilio Ajax*, var. *Walshii*, var. *Telamonides*, var. *Marcellus*, *Grapta Interrogationis*, var. *Umbrosa*, var. *Fabricii*.
- Part 10.—July, 1872.—Containing *Parnassius Smintheus*, *P. Evermanni*, *Grapta Satyrus*, *G. Zephyrus*, *Colias Meadii*, *C. Scudderii*.”

There is no mention in the original issue of Vol. I of the Supplementary Part. This bore on the front cover-page of the wrapper the following:



SEE NOTICE ON LAST PAGE OF COVER  
Supplementary Part. (Concluding the Volume).

THE  
BUTTERFLIES OF NORTH AMERICA

BY

W. H. EDWARDS

Member of the American Entomological Society

---

PHILADELPHIA

The American Entomological Society.

1872

The issue of the "Supplementary Part" is first noted in the First Volume as printed by Hurd and Houghton. It actually was distributed to subscribers in November, 1872, but in the volume as printed by Hurd and Houghton, it is cited as follows: "SUPPLEMENT.—January, 1873.—Containing new Plates of *Argynnis Diana*, *A. Nokomis*, *A. Leto*. Supplementary Notes. Index. Synopsis."

- The notice referred to on the front cover-page of the wrapper of the Supplementary Part (See *antea*) appears on its last page and reads as follows:

"NOTICE

Volume I. of the BUTTERFLIES OF NORTH AMERICA will shortly be published by Messrs. Hurd & Houghton, of New York. Part 2\* of Volume II. will issue from same house about June 1st, 1873,† and to insure regularity of delivery (quarterly) the several Parts will contain but three or four Plates, the price per Part being at the rate of 50 cents per Plate.

Subscriptions to Volume II. will be received by Hurd & Houghton, New York, or E. T. Cresson, Post Office Box 31, Philadelphia. That some idea may be formed of the size of the edition required, it is desirable that subscriber's names should be sent in early, the subscription money will not be payable until the Parts are ready for delivery.

The general style of the work will be as heretofore, but the Plates and descriptions will not be limited strictly to hitherto unfigured species.

W. H. EDWARDS.

November, 1872."

\*Corrected in ink from "2" to 1.

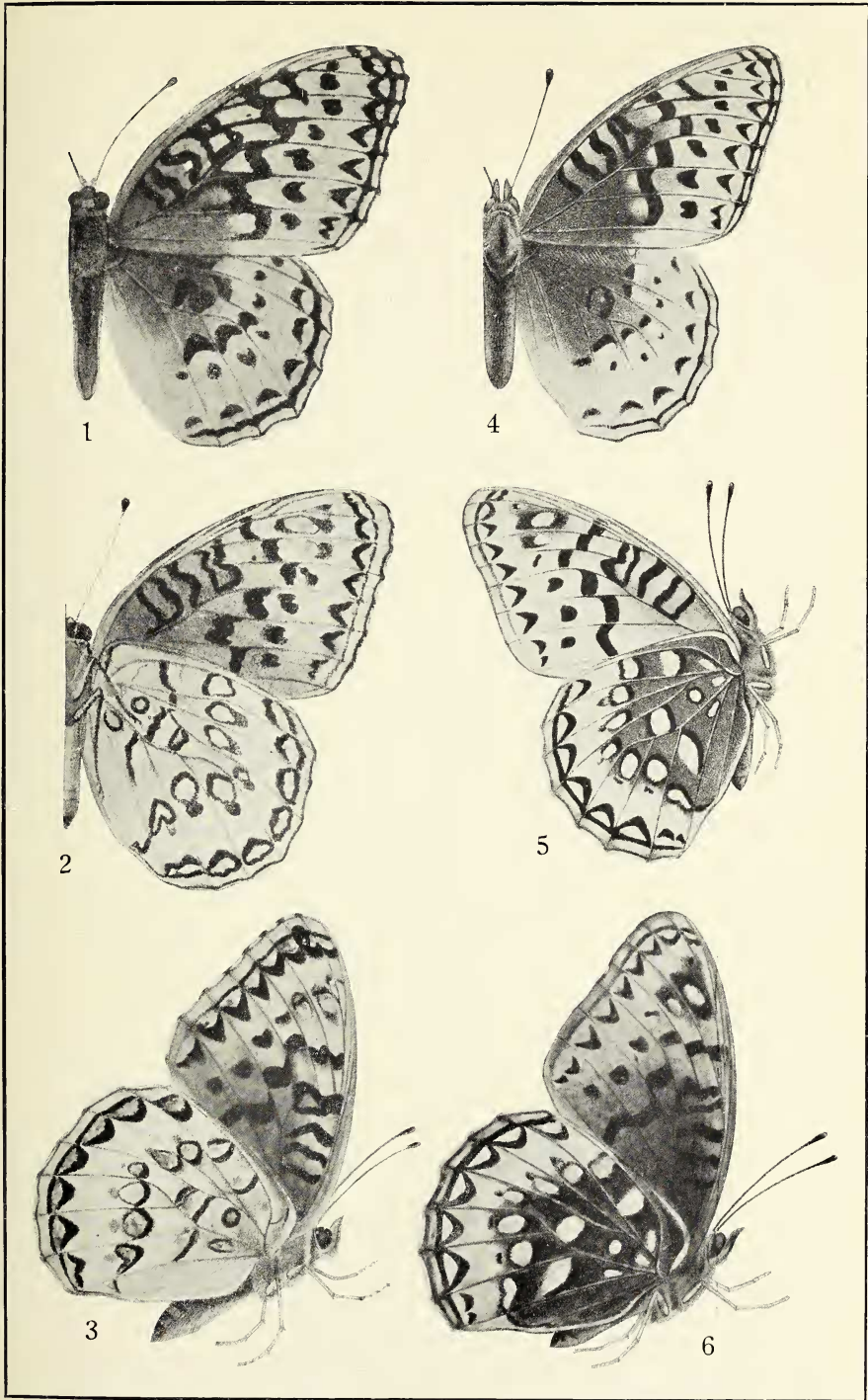
†Did not, however, appear until May, 1874.





## EXPLANATION OF PLATE II.

- Fig. 1. Photograph of the upper side of the fore wing of the type of *A. nokomis* Edw. ♂, from the colored plate executed by D. Wiest contained in the copy of "The Butterflies of North America," originally owned by R. L. Walker and now in the possession of Dr. A. Avinoff. This is one of the original plates issued to an early subscriber in the year 1868, and which was replaced by another plate drawn and colored by Mrs. Mary Peart, and sent gratis to subscribers in the Supplementary Part of Vol. I, issued by the American Entomological Society in November, 1872.
- Fig. 2. Photograph of the under side of the hind wing of the type of *A. nokomis* as shown in Wiest's plate found in the same copy as Fig. 1.
- Fig. 3. Photograph of the under side of the hind wing of *A. nokomis* as delineated by Mrs. Peart in the substituted plate issued in November, 1872. It will be observed that there is no appreciable difference between this representation and that shown in Fig. 2. (Slightly enlarged by the photographer).
- Fig. 4. Upper side of the fore wing of the type of *A. nitocris* Edw. ♂, as delineated by Mrs. Peart in the Third Volume of "The Butterflies of North America."
- Fig. 5. The under side of the wings of *A. nitocris*, ♂, from an uncolored copy of the drawing of that species executed by Mrs. Mary Peart.
- Fig. 6. Photograph of the same after having been colored. (Slightly enlarged by the photographer).



For explanation see opposite page.